

Appl. No. : 09/973,844  
Filed : October 9, 2001

### REMARKS

With this amendment, Claims 55-57, 59-66 and 69-81 are pending in the present application. Claims 55 and 60 have been amended and Claims 58, 67-68, and 82-85 have been canceled. In view of the foregoing amendments and the following remarks, Applicant respectfully requests reconsideration and allowance of this application.

#### **Claims Rejections-35 U.S.C. §102(b)**

The Examiner rejected Claims 55 and 59 under 35 U.S.C. §102(b) as being anticipated by King. However, Applicant notes that King does not disclose a building material having a first component comprising a pre-formed fiber cement layer wherein the fibers of the first component extend in a substantially planar orientation substantially parallel to a surface of the pre-formed fiber cement layer. (See, *e.g.*, Claims 55 and 60 as amended) Because King does not positively teach each and every element recited in Claims 55 and 59 as amended, Applicant respectfully requests withdrawal of this rejection.

#### **Claims Rejections-35 U.S.C. §103(a)**

The Examiner also rejected Claims 60 and 80 under 35 U.S.C. §103(a) as being unpatentable over King in view of Freed. After carefully reviewing the references, Applicant notes that the references, individually or in combination, do not teach or suggest a building material having a pre-formed fiber cement layer having a density of between about 53 to 115 lbs/ft<sup>3</sup> and comprising about 5-12 wt.% of cellulose fibers, wherein the cellulose fibers extend in a substantially planar orientation substantially parallel to a surface of the pre-formed cement layer. Applicant has discovered that these design elements, in combination, provide the final product with superior physical and mechanical properties that are typically not present in conventional fiber cement concrete.

In the Office Action, the Examiner suggested that since the density of the concrete block in King overlaps the density recited in Claim 55, King should inherently have the same physical and mechanical properties as that claimed by Applicant. Applicant respectfully disagrees with the Examiner's conclusions. First, Applicant submits that the density of the corresponding fiber cement facing (heavier component) in King ranges from 130 to 140 pounds per cubic foot, which does not overlap the density range of the pre-formed fiber cement layer of Applicant's building material. Even if the two density ranges do overlap, Applicant respectfully disagrees that the overlapping densities would result in the same physical and mechanical properties. Applicant

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submits that properties such as tensile strength are affected by a variety of factors, include fiber orientation and cement formulation.

The particular orientation of the fibers as recited in the pending claims contribute to a fiber cement facing having a much higher tensile strength at lower densities as compared to traditional concrete materials or fiber-reinforced concrete disclosed in the cited references. It is well known that traditional concrete materials rely on high compressive strength and density to achieve a requisite degree of durability, and if individualized fiber reinforcement is used, less than 5% by weight of fibers is used in order to maintain a requisite compressive strength.

As disclosed in Applicant's specification, the tensile strength of one embodiment of the pre-formed fiber cement facing is about 6 MPa. Moreover, a 6 MPa tensile strength is achieved even though the fibercement facing disclosed in the Applicant's specification is 53 to 115 lbs/ft<sup>3</sup>, which is significantly lower than the heavier fraction 14 disclosed in King. The heavier fraction in King has a compressive strength of 2000-6000 pounds per square foot which correlates to a tensile strength of less than about 1 MPa according to Properties of Concrete, 4<sup>th</sup> edition (A.M. Neville, editor) page 310. This clearly shows that the "heavier fraction" facing material disclosed in King is a different material than what is recited in Claim 55.

Moreover, Applicant further submits that the outer portion 14 of King having a density of 130 to 140 lbs is typical of concrete. Concrete having this density will typically have a compressive strength of 2000 to 6000 pounds per square inch, not pounds per square foot. A compressive strength of 2000 to 6000 pounds per square inch would, according to the Neville reference, correlate to a tensile strength of less than 5 MPa. Even accounting for the possible typographical error in the units in the King reference, it is still apparent that the Applicant's pre-formed fiber cement layer has different material properties than the analogous "heavier fraction 14" disclosed in King.

While Freed discloses the possibility of adding more than 5% fibers to a cement mixture, it is well known that adding fibers above 4% by weight to a concrete mixture will proportionately decrease compressive strength of said mixture, therefore it is not obvious to use a fiber cement layer having a relatively high fiber content and low density as the reinforcing layer. As such, there would have been no motivation to combine the two references as suggested by the Examiner. Thus, Applicant respectfully submits that the pending claims are patentable over King in view of Freed.

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The Examiner further rejected Claims 60-79 under 35 U.S.C. §103(a) as being unpatentable over Jungbluth, Freed, Miller, Weaver, Schupack, Sheber, Perkins, Anderson, or a combination thereof. After reviewing each of the references, Applicant notes that none of the references, individually or in combination, teaches or suggests a building material having a pre-formed fiber cement layer *simultaneously* having a fiber content of 5% -12% by weight, a density of 53 to 115 lbs/ft<sup>3</sup>, and the fibers extending in a substantially planar orientation substantially parallel to a surface of the pre-formed fiber cement layer thus none of the reinforcing layers disclosed in the above cited references could have the attributes (*e.g.*, tensile strength) disclosed in the Applicant's specification. . Thus, Applicant respectfully submits that the pending claims are patentable over these references.

#### CONCLUSION

In view of the foregoing, Applicant respectfully submits that the pending claims are in condition for allowance and such action is earnestly solicited. Should there be any impediment to the prompt allowance of this application that could be resolved through a telephone conference, the Examiner is respectfully requested to call the undersigned at the number shown below. Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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